Helen Zhou

M.Eng. Student in MIT EECS

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Education

Massachusetts Institute of Technology (MIT)   Cambridge, MA

M.Eng. in Computer Science & Electrical Engineering (GPA: 5.0/5.0)   2017 - 2018
B.S. in Computer Science & Electrical Engineering (GPA: 4.9/5.0)   2013 - 2017

Selected Coursework:

Machine Learning (6.867)	Fall 2016	*Biomedical Computing (6.872)*	Fall 2017
Natural Language Processing (6.864)	Fall 2016	*Networks (14.15/ 6.207)*	Spring 2017
Advances in Computer Vision (6.819)	Fall 2015	*Design & Analysis of Algs. (6.046)*	Fall 2015
Signals, Systems, & Inference (6.011)	Spring 2017	*Robotics: Science. & Systems (6.141)*	Spring 2016

Research Experience

**Aug 2018
Sept 2017**

M.Eng. Research Student, Clinical Machine Learning Group, MIT
Advisor: Prof. David Sontag

- **Thesis:** *Large-scale Prediction of Patient-Level Antibiotic Resistance: Towards Clinical Decision Support for Improved Antimicrobial Stewardship* (MIT Masterworks video)

**Sept 2017
June 2017**

Research Intern, Digital Relevance Ranking Team, Amazon Search (A9)
Advisor: Dr. Vamsi Salaka

- Created a universal model for relevance ranking in Kindle
- Proposed review summarization feature using topic modeling techniques. *1st place in hackathon, now implemented in production, submitted for patent review*

**Aug 2017
Oct 2015**

Independent Research Collaboration, Fluid Interfaces Group, MIT
Advisor: Prof. Pattie Maes

- Experimented with various deep learning architectures to perform appearance-based gaze estimation for low-cost VR settings
- Gave a talk at the *2017 European Conference for Eye Movements*

**May 2017
Jan 2014**

Undergraduate Research Student, Laboratory for Social Machines, MIT
Advisor: Prof. Deb Roy

- *Characterizing Food Purchase Behavior:* used time series, ML, and network analysis techniques across food domains (purchases, tweets, recipes)
- *Latent Identity - Linking Profiles Across Internet Services:* implemented NLP, time series analysis, and ML techniques to link social media profiles. Paper at *SocInfo 2015.*
- *Contextual Social Media Text Sentiment Classification:* experimented with various ML algorithms and novel features. Paper at *EMNLP 2015* workshop.

Publications / Talks

1. S Vosoughi, **H Zhou**, D Roy. Enhanced Twitter Sentiment Classification Using Contextual Information. In proc. of EMNLP 2015 workshop on Approaches to Subjectivity, Sentiment & Social Media Analysis.

2. S Vosoughi, **H Zhou**, D Roy. Digital Stylometry: Linking Profiles Across Social Networks. In proc. of 2015 International Conference on Social Informatics. Also in Lecture Notes in Comp. Sci. book series.

3. **H Zhou**, D Roy, S Vosoughi. Analyzing & Understanding Food Networks. 2016 EECScon conference.

4. **H Zhou**, D Mayo, S Greenwald. Siamese Convolutional Neural Networks for Appearance-Based Gaze Estimation. Gave talk at the 2017 European Conference on Eye Movements. Wuppertal, Germany.

Selected Honors / Awards

2016 - 2018	**MIT Eta Kappa Nu** (HKN) & **Tau Beta Pi** (TBP) Honor Society
2017	**1st place** in **Amazon Search intern hackathon**, idea is now implemented in amazon.com, with patent in progress
2015 - 2017	**SuperUROP Scholar**
2014 - 2015	**Society of Women Engineers Scholarship** Recipient

Other Industry Experience

Sept 2017 May 2016	**Software Engineering Intern, Google Daydream** Created and integrated firmware update library and UI for VR headset controller
Feb 2016 Jan 2016	**Software Engineering Intern, Brain Power LLC.** Designed and implemented various computer vision, game, and analytical features for the company's main product: Google Glass tailored to help kids with autism
Aug 2015 May 2015	**Software Engineering Intern, Google Fiber** Created an extensible Django website for visualization & analysis of Wi-Fi tests

Leadership / Service

MIT Eta Kappa Nu EECS Honor Society - Tutoring Chair ('17-'18), Internal Relations Chair ('16-'17)
- Lead & organize an EECS department-wide tutoring program for ~300 students.
- Previously, documented and advertised HKN service initiatives.

MIT IEEE Undergrad. Research & Tech. Conference - Co-Chair ('15-'16), Webmaster ('14-'15)
- Created a new "EECSplore" outreach event, gave plenaries, organized volunteers, managed 200 attendees, & coordinated a 15-member steering committee
- Created the website for the first annual international URTC conference.

EECScon Conference Organizing Committee - Social Media Chair ('14-'15)

MIT Solar Electric Vehicle Team - Mechanical Engineering Company Sponsor Lead ('13-'14)

Teaching

- **Intro to Machine Learning TA** (6.036, Fall & Spring 2017) - helped manage 700 students, taught recitations, crafted assignments, and answered questions in section/ online
- **Intro to EECS II head grader** (6.02, Fall 2016) - wrote solutions to be distributed to graders
- **Algorithms & Math for Computer Science HKN Tutor** (6.006, 6.046, 6.042, Fall 2014 - Spring 2016)
- **Intro Deep Learning TA** (6.S191), **Comp. Structs LA** (6.004), **Multivar. Calc. TA** (18.02), **Intro EECS LA** (6.01)

Skills

Programming Languages:	Python, Java, R, MATLAB, Javascript, C#, Swift, C++
Machine Learning Libraries:	TensorFlow, Keras, Scikit-learn, SciPy, NumPy
Other Frameworks:	ROS, OpenCV, Android Studio, Unity, SolidWorks, Django, React
Miscellaneous:	Linux, long-distance running, drawing, piano, clarinet

Other Projects

- <u>Moments</u>: Android app to revisit happy moments (honorable mention at 2015 Greylock Hackfest)
- <u>Scavengr</u>: Android App for going on and creating scavenger hunts (Feb 2015 - May 2015)
- <u>BattleJeweled</u>: multiplayer, highly customizable make-3 cross-platform game app (Jan 2015)